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new volume containing the constitution, list of meetings, officers, committees, fellows and members was nearly ready for publication.

At 5.30 P.M., the council adjourned.

L. O. HOWARD,  
*Permanent secretary*

#### SCIENTIFIC NOTES AND NEWS

MEMBERS of the National Academy of Sciences were elected on April 21, as follows: Dr. Charles Greeley Abbot, director of the astrophysical laboratory of the Smithsonian Institution; Dr. W. E. Castle, professor of zoology, Harvard University; Dr. G. Stanley Hall, president of Clark University and professor of psychology; Dr. Frank R. Lillie, professor of embryology, University of Chicago; Dr. Graham Lusk, professor of physiology, Cornell Medical School; Dr. Robert A. Millikan, professor of physics, University of Chicago; Dr. Alexander Smith, professor of chemistry, Columbia University; Dr. Victor C. Vaughan, professor of hygiene and physiological chemistry, University of Michigan; Dr. H. S. White, professor of mathematics, Vassar College; Dr. S. W. Williston, professor of paleontology, University of Chicago.

THE following have been elected members of the American Philosophical Society: John J. Abel, M.D., Baltimore, Md.; Edwin Plimpton Adams, Ph.D., Princeton, N. J.; Walter Sydney Adams, Pasadena, Cal.; John Merle Coulter, Ph.D., Chicago, Ill.; Whitman Cross, Ph.D., Washington, D. C.; William J. Gies, M.D., New York City; Philip Bovier Hawk, Ph.D., Philadelphia; John Fillmore Hayford, Evanston, Ill.; Emory Richard Johnson, Sc.D., Philadelphia; John Anthony Miller, Ph.D., Swarthmore, Pa.; Thomas Hunt Morgan, Ph.D., New York; William Fogg Osgood, Ph.D., Cambridge, Mass.; Raymond Pearl, Ph.D., Orono, Me.; Theobald Smith, M.D., Boston, Mass.; John Zeleny, Ph.D., Minneapolis, Minn.

A BANQUET to Dr. William Henry Dall, commemorating the completion of fifty years service to science was given at the Cosmos Club, Washington, on April 21. Dr. Dall responded to a series of toasts which were as

follows: Dall the Alaska pioneer, Dr. Alfred H. Brooks; Dall the anthropologist, Professor William H. Holmes; Dall the coast pilot, Mr. Isaac Winston; Dall the malacologist, Dr. T. Wayland Vaughan; Dall the zoologist, Dr. C. Hart Merriam; Dall the nomenclatorist, Dr. Ch. Wardell Stiles; Dall the poet, Justice Wendell P. Stafford; Dall the man, General A. W. Greely.

THE Royal Society of Arts has presented its Albert medal to Senator Guglielmo Marconi "for his services in the development and practical application of wireless telegraphy."

At the annual dinner of the National Academy of Sciences, held on April 20, the Draper medal was presented to Dr. Joel Stebbins, professor of astronomy at the University of Illinois.

THE Jacksonian prize of the Royal College of Surgeons, London, has been awarded to Mr. Jonathan Hutchinson for his essay on the pathology, diagnosis and treatment of trigeminal neuralgia, and the John Tomes prize to Mr. J. F. Colyer for his work on comparative dental anatomy and pathology.

ACCORDING to a cablegram from Nish, Dr. Richard P. Strong, professor of tropical diseases in the Harvard Medical School, arrived there on April 24. He at once sat down to a long conference with the minister of the interior, Ljouba Jovanovitch, to discuss a plan of campaign against disease.

DR. SAMUEL T. DARLING, who was associated with General Gorgas for ten years on the Panama Canal, and who accompanied him to South Africa during his investigation of disease among the miners on the Rand, has resigned as chief of laboratory, and will investigate disease in the far east for the Rockefeller Foundation's international health commission. He left for Singapore via Liverpool on the *Adriatic* on April 21.

DR. FREDERICK H. GETMAN, of Bryn Mawr College, has resigned as associate professor of physical and inorganic chemistry and will open a private research laboratory in Stamford, Conn., at the close of the academic year.

C. M. JANSKY, professor of electrical engineering at the University of Wisconsin, has accepted an appointment on the jury of awards in the electrical group of the machinery exhibit at the Panama-Pacific International Exposition. He takes up his duties at San Francisco on May 3.

DR. K. HIRAYAMA, professor of astronomy in the University of Tokio, arrived at San Francisco on April 19 for two years' research study in the United States, principally at Yale University. He will inspect the observatories of the country and seek suggestions for the advancement of astronomical work in Japan.

THE Anglo-Swedish Antarctic expedition, under the leadership of Professor Otto Nordenskjöld, has been postponed until the war has ended.

DURING part of March and April, Mr. Robert Cushman Murphy, of the Brooklyn Museum, conducted field work in the Lower California desert. The principal object of the expedition was to study and obtain specimens of the pronghorn antelope. The material collected is to be used in a large exhibit illustrating plant and animal life of the arid southwest.

PROFESSOR J. S. HUXLEY, of the department of biology, Rice Institute, accompanied by Mr. W. M. Winton, biological fellow, and Dr. W. C. Graustein, instructor in mathematics, visited the Texas College, April 17-19, for an examination of local fossils gathered by Professor Francis from the Brazos Valley, as a preliminary to a collecting trip planned for later in the spring.

AT the meeting of the New England Federation of Natural History Societies held last week in the building of the Boston Society of Natural History, Boston, the principal business was the reports of societies and the election of officers. More than twenty societies responded to the former with statements outlining their activities. The election resulted as follows: President, John Ritchie, Jr., Boston Scientific Society; vice-presidents, Arthur H. Norton, Portland Society of Natural History; Norman S. Easton, Fall River Society of Natural History; secretary, James H. Emer-

ton, Cambridge Entomological Club, Boston; treasurer, Miss Delia I. Griffin, curator, Children's Museum, Pine Banks, Jamaica Plain.

THE members of Sigma Xi in the University of Oklahoma have organized a club to be known as the Sigma Xi Club of Oklahoma. Dr. Irving Perrine addressed the first regular meeting, on March 29, on the subject of "Some Problems in Oklahoma Geology." It is the purpose of the organization to stimulate scientific research in the University of Oklahoma and the secretary, W. C. Allee, desires to get in communication with members of Sigma Xi who are planning to pass through Oklahoma.

PROFESSOR T. B. BRODIE, professor of physiology in the University of Toronto, will deliver a course of four lectures on "The Gases of the Blood" at King's College, London, on May 31, June 2, 7 and 9.

M. EDMOND RIGAUX, of Boulogne, known for his work in geology and paleontology, has died in his seventy-seventh year.

DR. W. GRYLLS ADAMS, F.R.S., emeritus professor of natural philosophy and astronomy in King's College, London, died on April 10, at the age of seventy-nine years.

DR. OTTO N. WITT, professor of chemical technology in the Technical High School at Charlottenburg, died on March 23, aged sixty-four years.

A NEW publication called the *Illinois Chemist* will make its appearance at the University of Illinois in May. Four chemistry organizations will cooperate with the chemistry department in issuing this new quarterly. It will publish among other things, information in regard to research work—results of experiments, notes on the work of alumni in the science. H. D. Valentine has been elected editor and V. W. Haag, business manager.

It is announced in *Nature* that the whole of the collections and library of the late Fortescue W. Millett, of Marazion and Brixham, have been acquired by Mr. Heron-Allen, and will be incorporated as a special section of the Heron-Allen and Earland collection, to which the collection of the late J. D. Siddall, of Chester, was also added recently. It is

hoped that this entire collection, numbering some 10,000 slides, and the library which accompanies them, will ultimately be incorporated with the Museum of Oceanography and Marine Biology, which it was the ambition of the late Sir John Murray to found. Broadly, his object was to form his collections of material and soundings into a department of the Natural History Museum in conjunction with the H. B. Brady and W. B. Carpenter collections, which are already there. The co-ordination of the Brady, Carpenter, Murray, Millett, Siddall, and Heron-Allen and Earland collections would form a reference museum of oceanic deposits and type specimens without an equal in the world.

THE biological laboratory at Fairport is regularly open but the mess and special accommodations for temporary investigators will be available about June 15. There are opportunities and facilities for zoological and botanical investigations as well as for chemical studies relating to biological problems. Investigators desiring to occupy tables for any part of the season may communicate with the Commissioner of Fisheries, Washington, D. C., or the director of the station, Fairport, Iowa.

PROFESSOR LAWRENCE MARTIN, of the University of Wisconsin, is planning to conduct a party for summer field work in Alaska, stopping on the way at the Grand Canyon of the Colorado, the fault lines near San Francisco, and the California exposition. The trip is open to students from other universities and to teachers of geography and geology. It will start the middle of June or first of July and be gone about two months. Most of the time will be spent in camp along the fiords and in studying the glaciers of southeastern Alaska, including the Muir, Grand Pacific, Johns Hopkins and other ice tongues in Glacier Bay near the base of Mt. Fairweather (15,000 feet high), and the Taku, Norris, Eagle, Herbert, Mendenhall, Davidson, Denver, Sawyer, Dawes, Baird, Patterson, Le Conte and the Great Glacier of the Stikine. Examination of faults and other structures in the sedimentary rocks at the border of the coast range batholith, especially in relation to the origin of the

fiords. Visits to gold mines, placer deposits, copper mines, marble quarries, gypsum mines, salmon canneries, native villages with totem poles, etc. Possible ascent of Mt. Edgecumbe, a dormant volcano near Sitka. Trip over Canadian Coast Range on White Pass and Yukon Railway. Students without previous training may work for credit in elementary geology and physical geography, while advanced students can take up special problems in physiography, structural geology, stratigraphy and glacial phenomena.

IN connection with the 109th annual meeting of the Medical Society of the State of New York, in Buffalo, this week, a program of public lectures was arranged as follows:

Monday evening, April 26, "Public Health." Professor C. E. A. Winslow, director, division of publicity and education, New York State Department of Health. Subject: "The New York State Department of Health and its Work." Illustrated. Dr. Charles J. Hastings, medical officer of health, Toronto, Ont. Subject: "What are We Doing to Improve our Race?" Dr. Francis E. Fronczak will preside.

Tuesday afternoon, April 27, "Child Saving." Julia C. Lathrop, chief of children's bureau, U. S. Department of Labor, Washington, D. C. Subject: "Why the Children's Bureau Studies Infant Mortality." Dr. Angenette Parry, New York City, president, Women's Medical Society of New York State, will introduce the speaker. The ladies' committee cordially invite all women to meet Miss Lathrop in the Reception Room of the Armory at five.

Tuesday evening, April 27, "Child Welfare." Dr. J. W. Schereschewsky, surgeon, Public Health Service, Washington, D. C. Subject: "The Relation of Heat to the Summer Mortality of Infants." Illustrated.

Wednesday afternoon, April 28, "Mentality of the Child." Henry H. Goddard, Ph.D., director, department of research, The Training School, Vineland, N. J. Subject: "The subnormal Child: Who is He and what must be Done for Him?" Illustrated.

Wednesday evening, April 28, "Safety First." Dr. Thomas Darlington, American Iron & Steel Institute, New York. Subject: "Welfare Work in Industry." Illustrated.

Thursday afternoon, April 29, "Prevention of Blindness." Edward M. VanCleve, managing di-

rector of the National Committee for the Prevention of Blindness, New York. Subject: "Saving Sight and Saving Citizens." Illustrated.

Thursday evening, April 29, "Conservation of Vision." Mr. Ward Harrison, illuminating engineer, Cleveland, Ohio, representing the Illuminating Engineering Society. Subject: "Right and Wrong Methods of Interior Illumination." Illustrated by booths.

THE Royal Geographical Society, as we learn from *Nature*, has received news of Sir Aurel Stein's explorations in Central Asia from April to November, 1914. The expedition started in April from Tunhuang, where it had halted to recruit after the trying campaign in the Lop-nor desert between Turfan and the northern boundary of Tibet. The cave temples of the Thousand Buddhas near Tunhuang were re-visited, and further interesting collections were made. The explorer followed the ancient wall for 250 miles, and found that it was constructed of fascines of reeds or brushwood, admirably adapted to check the wind erosion of the desert sands. Coins, pottery and metal fragments found near the surface made it possible to define the Chinese frontier posts with accuracy. Beyond the So-lu Hu Valley further remains of the same kind were found. While Sir Aurel Stein was hunting for remains of the Great Yuechi on Indo-Hun culture to the north, his surveyor, Lal Singh, examined the ruined town of Khara Khoto, and proved that this could be no other than Marco Polo's "City of Etzina," where in ancient times travelers bound for Karakoram, the old Mongol capital, used to lay in supplies for the march across the great desert. Here many Buddhist remains were found, and it was ascertained that the ruin of the city was due to failure to maintain the irrigation system. When he despatched his report Sir Aurel Stein had planned to examine Buddhist ruins round Turfan, while his surveyor was to undertake the exploration of the little-known desert ranges of the Kuruk-tagh between Turfan and the Lop-nor depressions.

THERE has recently been issued by the Bureau of Standards, of the Department of Commerce, a paper describing a Wheatstone bridge designed with especial reference to flexibility

of use in measurements with resistance thermometers, and discussing the use thereof. The bridge is adapted to use with either the Siemens type or Callendar type of resistance thermometer, or with the potential terminal type of thermometer by the use of the Thomson double bridge method. The instrument is also arranged so that it may be completely self-calibrated. The 0.01, 0.001 and 0.0001 ohm decades are secured by varying, by means of dial switches, the shunts on three coils permanently connected in the measuring arm of the bridge. The sum of the resistances which are permanently connected is 2.5 ohms when the dials are set on zero, so that in order to measure resistances smaller than this a coil of 2.5 ohms is connected in the adjacent arm of the bridge. The entire electrical circuit of the bridge, coils, contact blocks, switches and connectors are totally immersed in an oil-bath thermostat, and special manipulating devices for the links and dials, etc., are provided. Details of construction are shown by photographs and briefly explained in the text. A new form of hermetically sealed coil, suitable for Wheatstone bridges, potentiometers, and similar apparatus, is fully described and record of its performance reviewed. Such construction eliminates the seasonal variations of resistance (with varying atmospheric humidity) found in coils of the usual types. The accuracy attainable with the bridge is such that resistances of one ohm or more can be measured to an accuracy of one part in 300,000 in terms of the unit in which the calibration is expressed. This corresponds to an accuracy of about  $0^{\circ}.001$  for measurements with the platinum resistance thermometer. Low resistances, the accuracy of measurement of which is limited by variations in contact resistances, may be measured to about three millionths of an ohm. This figure, rather than the one given above for accuracy, represents the precision attainable in measuring small changes of resistance such as are usual in resistance thermometry.

THE nation-wide study of the lumber industry, which is being made jointly by the Department of Agriculture and the Department of

Commerce, and the other industrial and technical investigations and experiments which have been carried on by the Forest Service in the last two years, were discussed at a conference of Forest Service officials at Madison, Wis., on April 14 to 17. The Forest Service Laboratory, the Washington Office of Industrial Investigations, and each of the seven National Forest Districts were represented at the conference by specialists. Among the subjects discussed were: Cooperation of the Forest Service with industries, lumber distribution in the United States, utilization of low-grade lumber and mill waste, adaptation of manufacturing and grading to specific classes of consumers, unification and standardization of lumber grades, study and development of general markets for National Forest timber, mill scale studies, including technical methods, tallying, etc.; lumber depreciation and the collection and compilation of lumber price data.

#### UNIVERSITY AND EDUCATIONAL NEWS

APPROPRIATIONS for two new buildings to meet the needs of the University of Ohio and for additional tracts of farm land west of the Olentangy have been voted through the finance committee of the lower branch of the legislature. These extensions would involve an expenditure of \$340,000. A domestic-science building to cost \$150,000 and a shop building for manual training to cost \$120,000 are provided. Ninety acres of land would be purchased west of the Olentangy River at a probable cost of \$70,000.

THE department of geology of Oberlin College is to move soon from the old building to a modern home in the science quadrangle. The museum has recently added much valuable data, including a collection of paleozoic fossils carefully worked over, identified and labeled; a collection of gold and silver, lead, bismuth and other ores from Utah and Idaho; a considerable number of topographic coast survey and other maps, and a large collection of wall pictures.

PROFESSOR C.-E. A. WINSLOW has been appointed to the newly established Anna M. L.

Lauder professorship of public health at the Yale Medical School. He will give up his connection with the New York State Department of Health and the Teachers' College to take up this work next fall, but will continue to act as curator of public health at the American Museum of Natural History.

PROFESSOR JAMES F. NORRIS, head of the chemistry department and of the department of general science of Simmons College, Boston, has accepted the position of professor of chemistry and director of the chemistry laboratories of Vanderbilt University, Nashville, Tenn.

At the Massachusetts Institute of Technology Associate Professor Henry G. Pearson is advanced to the grade of professor of English and he will be placed in charge of the department on the retirement of Professor Arlo Bates at the end of the present academic year. The following assistant professors are advanced to the grade of associate professor in their respective departments: Dr. Robert F. Bigelow, zoology and parasitology; W. Felton Brown, freehand drawing; Harold A. Everett, naval architecture and H. R. Kurrelmeyer, German. Instructor Henry B. Phillips is advanced to assistant professor of mathematics, and assistant instructors K. C. Robinson and John E. Bird are advanced to the grade of instructor in mechanical drawing. Miss Ruth M. Thomas, research assistant in organic chemistry, is advanced to research associate in the same department. The title of Professor A. E. Kennelly is changed from chairman to director of the research division of the department of electrical engineering.

MR. W. L. MOLLISON has been elected master of Clare College, Cambridge, in succession to the late Dr. E. Atkinson. He was second wrangler in the mathematical tripos of 1876, and was elected a fellow of Clare in that year.

#### DISCUSSION AND CORRESPONDENCE

THE PRESENTATION OF THE FUNDAMENTAL CONCEPTIONS OF MECHANICS

THE recent discussion in *SCIENCE* of the fundamental equation in mechanics has sug-